

An aerial photograph of a city harbor at sunset. The sun is low on the horizon, casting a warm, golden glow over the water and the city. Several sailboats are visible on the water, and the city buildings are silhouetted against the bright sky. The water is dark blue, and the sky is a mix of orange and yellow.

Motor Challenges in Daily Life:

Specific Daily Living Skills are Associated with Individual Motor Profiles in Children with and without Autism Spectrum Disorder



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Impact of Motor Challenges

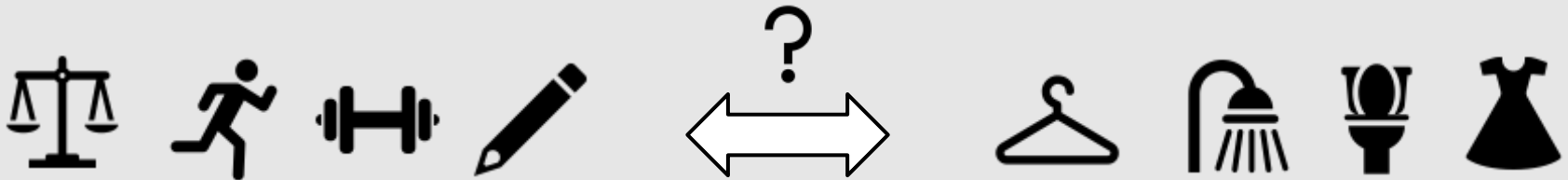


- 25-51% of children with ASD experience **significant motor impairments** but motor challenges are experienced in other conditions as well.
- Motor challenges appear to be **strongly associated with challenges with adaptive DLS** in preschool-aged children with ASD, and longitudinally in children, adolescents, and adults with ASD, even after controlling for age and IQ.
- Minor motor difficulties may impact development of DLS **across the lifespan**.

But Which Daily Living Skills?



- Literature has neither explored nor identified what specific DLS are most associated with motor challenges in children with and without ASD



Our Question: From standardized motor scores, can we predict challenges with specific daily living skills?

Purpose and Aims



First aim:

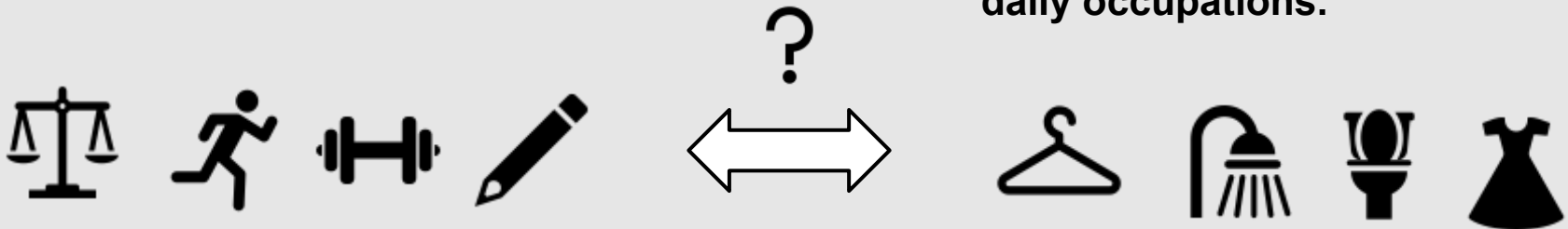
Evaluate the relationship between motor scores and DLS performance in children with and without ASD.

Second Aim:

The second aim was to explore motor scores and specific DLS item performance.

Overall Purpose

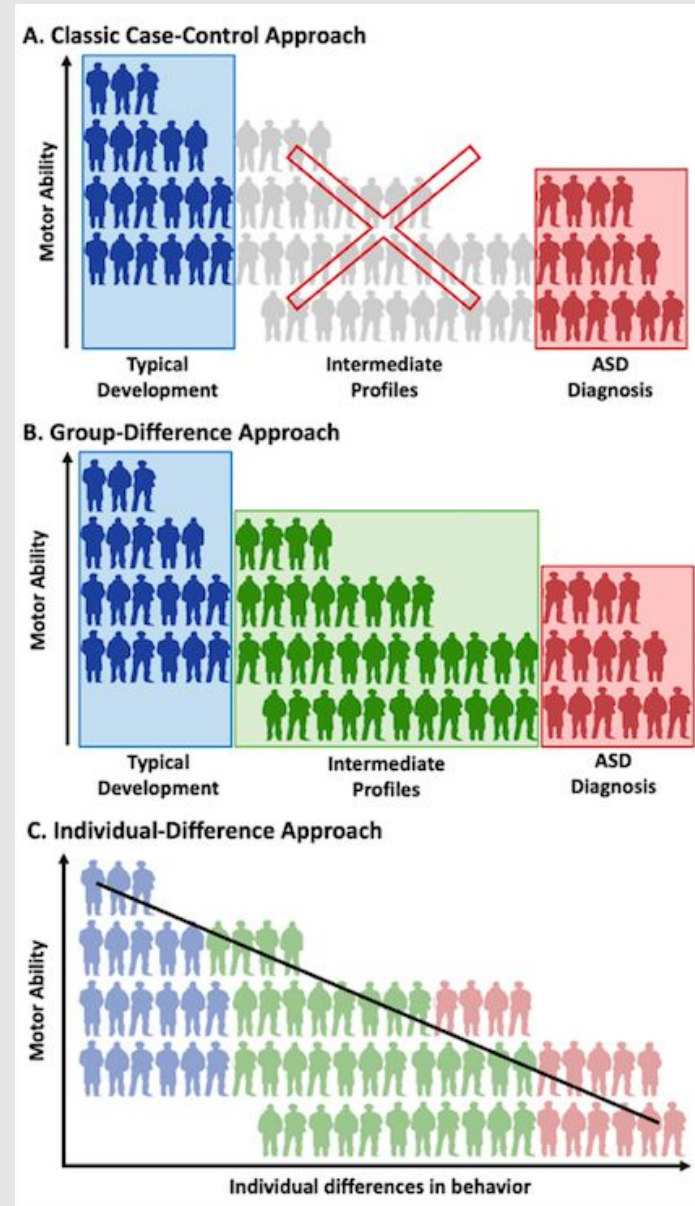
- Identify **specific DLS challenges related to motor performance** to give families and clinicians the opportunity to make informed decisions about which interventions or accommodations are most appropriate for a child with motor challenges, in order to **maximize participation and engagement in daily occupations.**



Participants



- **N= 102** children between ages 6-10 with ASD, typical development and an intermediate group with ASD related diagnoses.
 - ASD group: $n= 38$
 - Intermediate group $n=30$
 - Typical Development $n=34$
- **Exclusion Criteria:** diagnosis of tuberous sclerosis, fragile X, intellectual disability ($IQ < 70$, WASI), or contraindications to MRI
- Record review by the principal investigator and a licensed clinical psychologist who specializes in autism diagnosis was done for each participant in order to determine final group status



Autism Assessments



- Autism Diagnostic Observation Scale-2 (ADOS-2) (Lord, Rutter, DiLavore, Risi, Gotham, & Bishop, 2012)
- Social Responsiveness Scale -2 (SRS-2) (Constantino, J.N., & Gruber C.P., 2012)
- Social Communication Questionnaire (SCQ) (Rutter, M., Bailey, A., & Lord, C., 2003)

Wechsler Abbreviated Scale of Intelligence (WASI-II) (Lord, Rutter, DiLavore, Risi, Gotham, & Bishop, 2012)



- Used to assess intelligence and overall cognitive capabilities.

Vineland Applied Behavior Scale (VABS-II) (Sparrow, Cicchetti, & Balla, 2005).



- Parent report measure used to assess participants performance in daily living skills such as dressing, personal hygiene, grooming, eating, toileting, and household chores

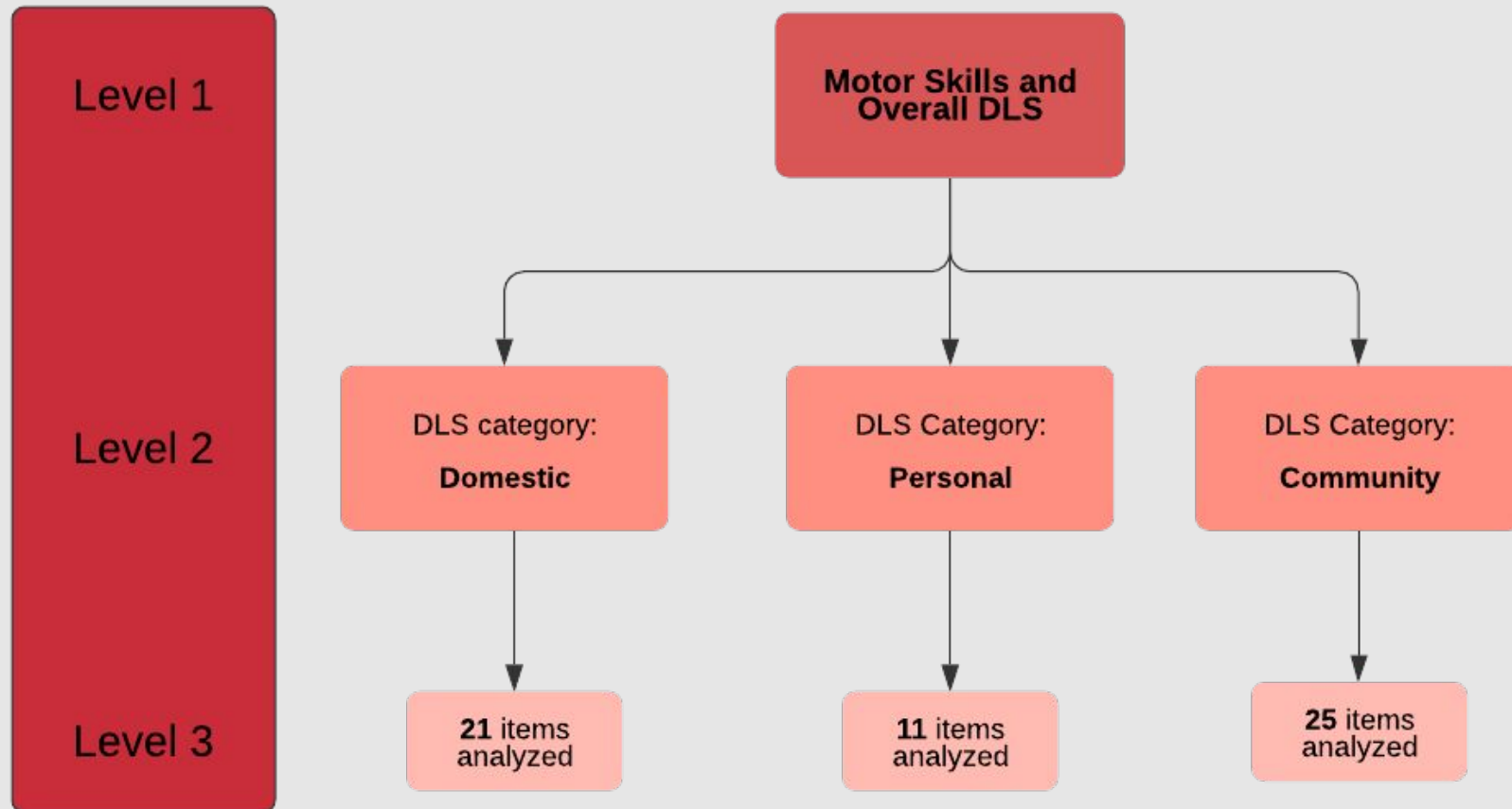
Bruininks-Oseretsky Test of Motor Proficiency-Second Edition (BOT-2)

(Bruininks & Bruininks, 2005)

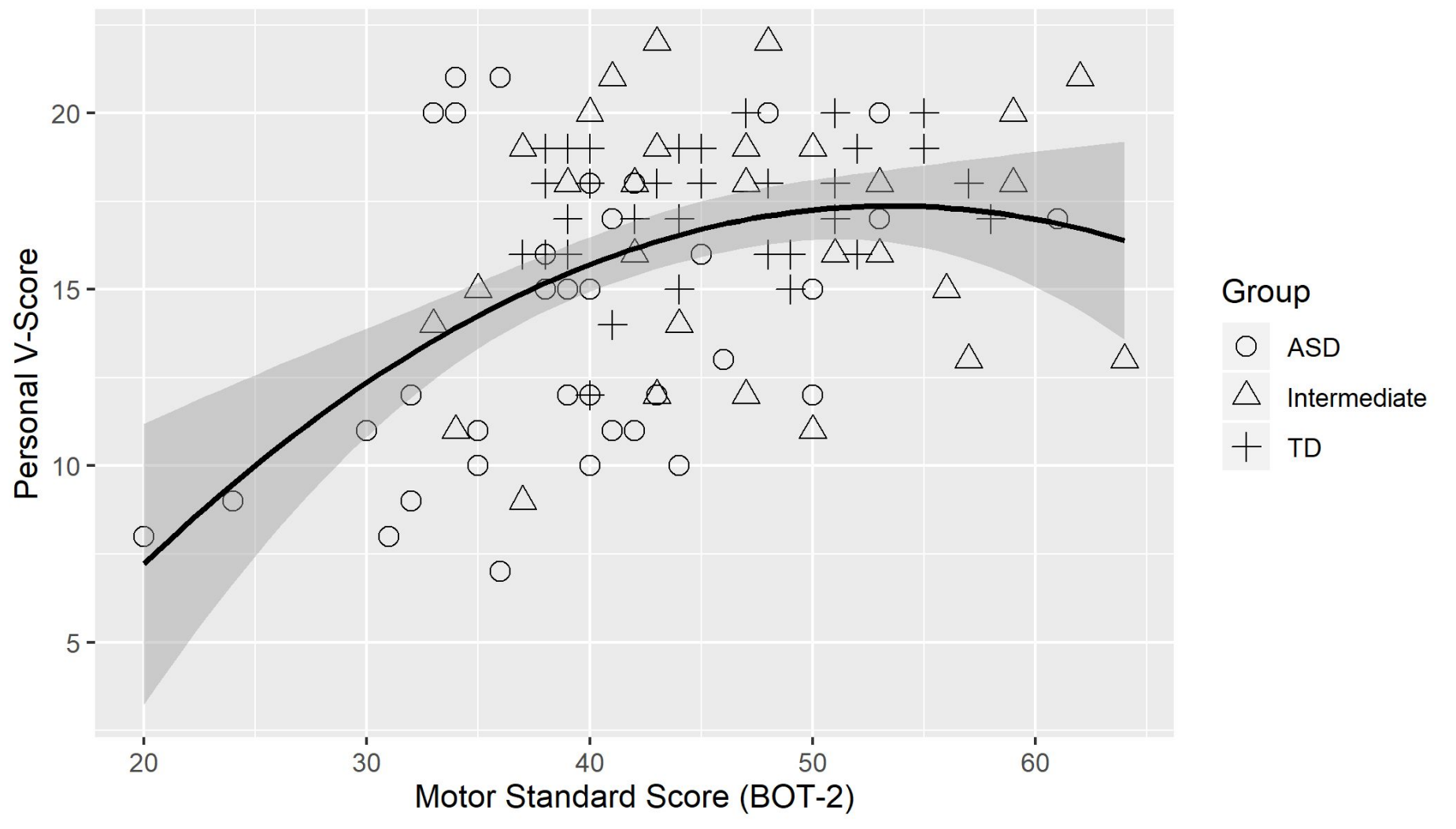


- Used to assess an individual's motor performance

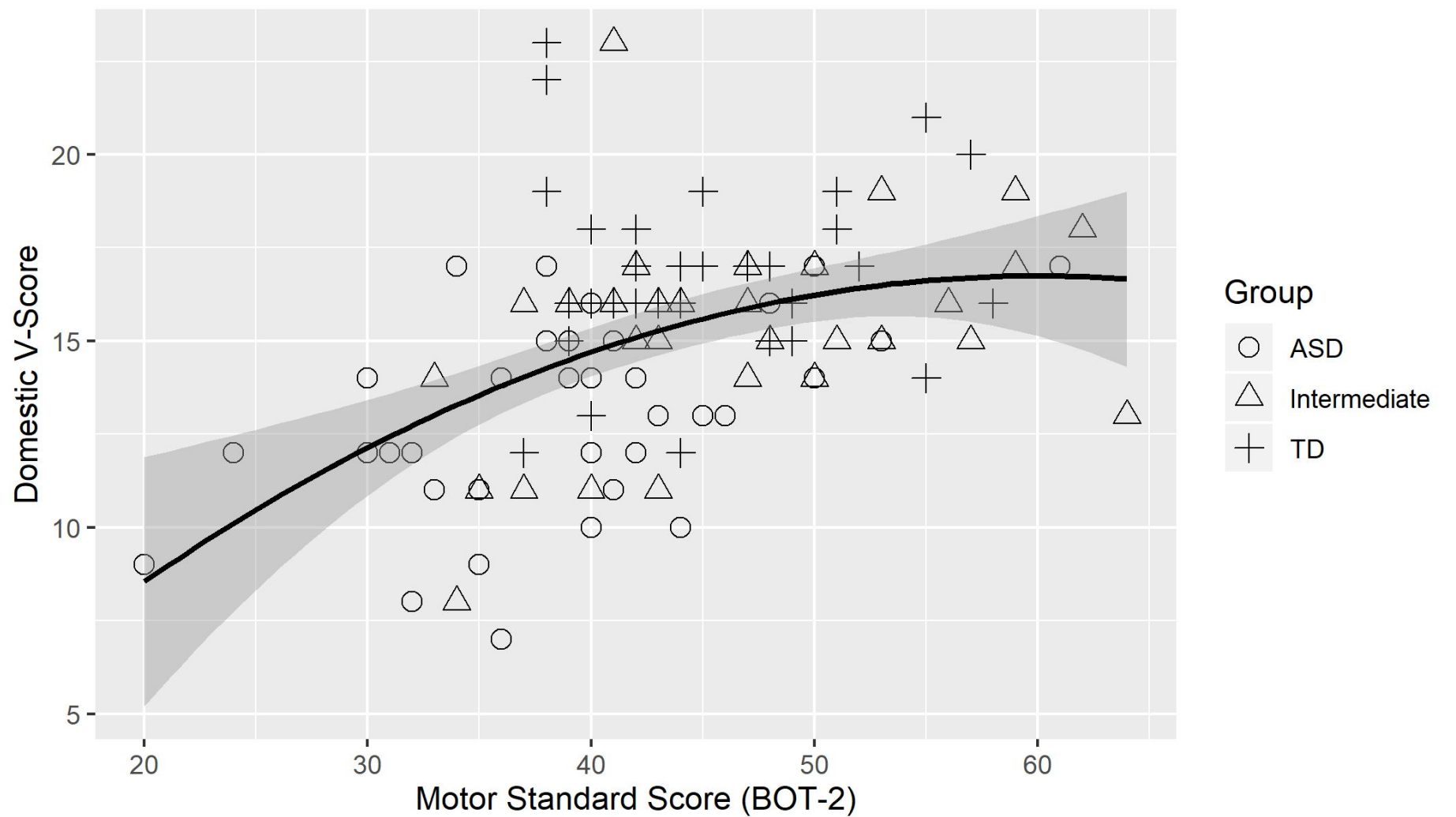
Data Analysis



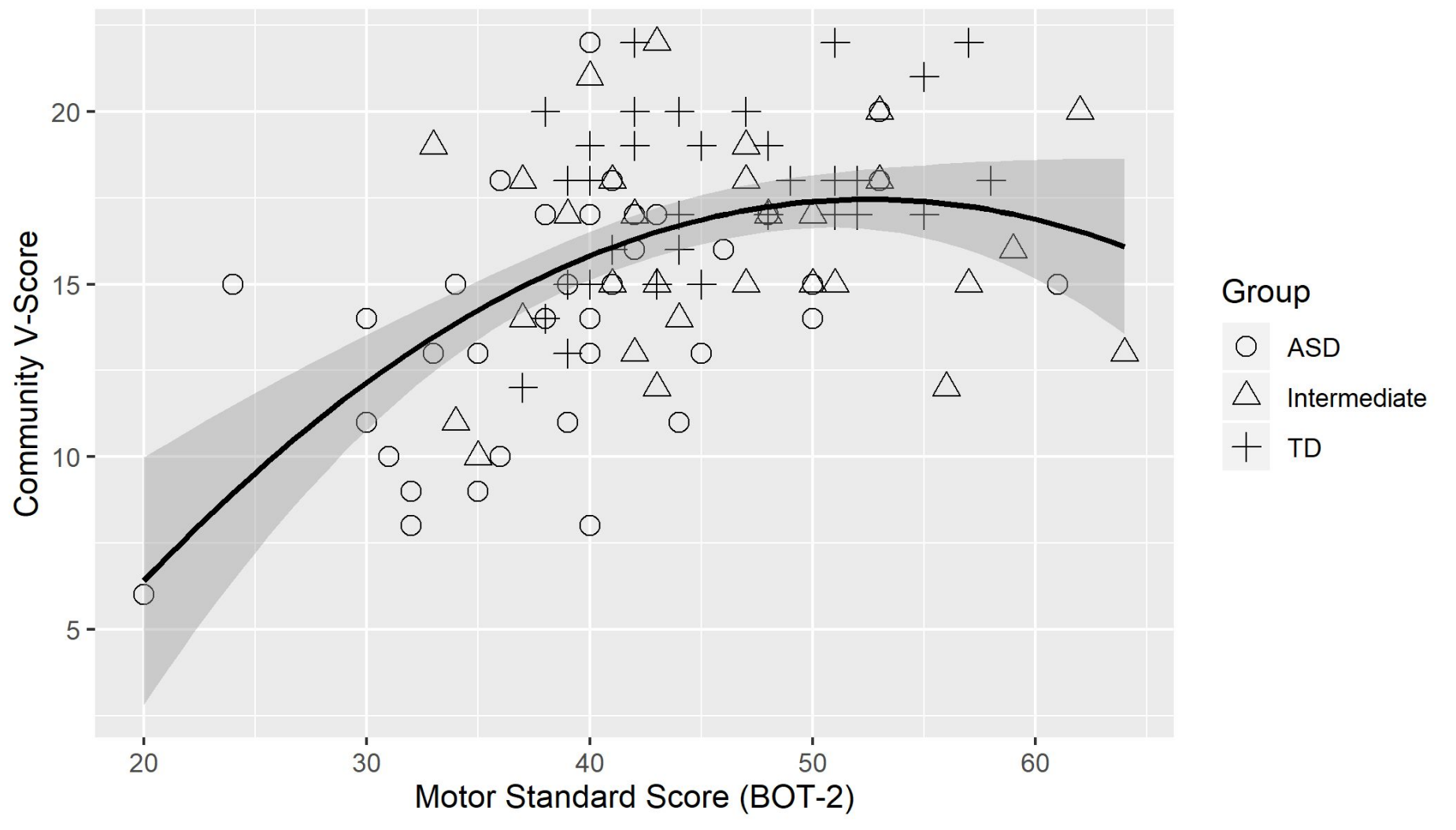
Results



Results



Results



Conclusions



- Our study was able to replicate previous findings of a positive relationship between motor profiles and DLS (Jasmin et al., 2009; Travers et al., 2017).
- Motor performance scores in the lower 31st percentile are related to poorer DLS performance; this relationship is seen across groups regardless of if there is an ASD diagnosis present. Motor scores and DLS are unlikely to be impacted if a child scores over 32nd percentile.
- Motor challenges were specifically related to poorer performance in occupations of dressing, bathing, and clearing or washing dishes. Challenges in these areas may be seen in the home and school environment.

Limitations



- Study was with ASD, intermediate conditions, and typical development → absence of additional populations of children such as those with cerebral palsy, developmental coordination, and Down syndrome
- Observed motor profiles and DLS at one time → limited knowledge in fully understanding directionality of motor abilities and DLS overtime



Implications for Practice

- Beyond the threshold of scoring above the 32nd percentile, a child's improvement in motor skills may not lead to improved performance in daily living skills.
- Following motor assessment, targeted motor interventions could help improve specific occupations and skill development
- In specific settings such as the school environment, this information could inform the most appropriate accommodations, modifications, and interventions and identify areas of skill development during the Individualized Education Plan process.





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